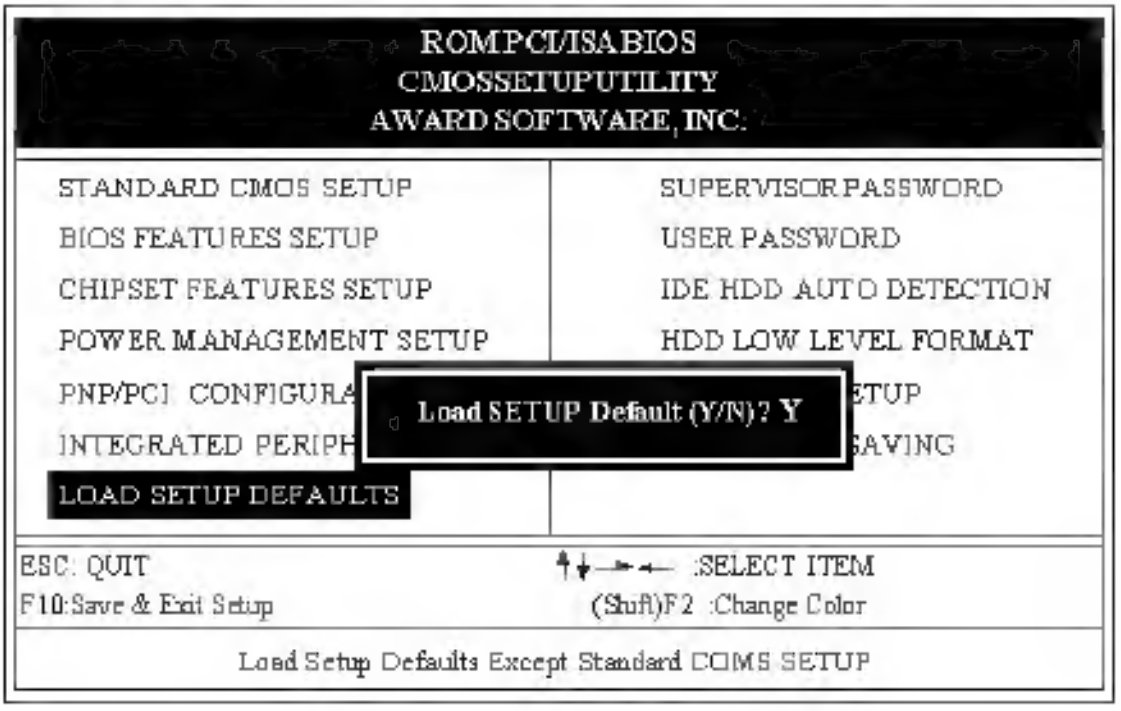
Read me first

1. The **'LOAD SETUP DEFAULTS'** function loads the system default data directly from ROM and initializes the associated hardware properly. This function is necessary when you accept this mainboard, or the system CMOS data will corrupt.



LOADSETUPDEFAULT

2. ***KBPO(KeyBoard Power On)*** Function : There is a basic requirement that the ***"+5VSB"*** power of the ATX power supply must be > =***0.1A (100mA).***

   Please refer to chapter 2-5 for detail.

Apollo MVP3 AGPset

EP-51MVP3G-M

ISA/PCI/AGP MainBoard

with Onboard PCI IDE and Super Multi-I/O.

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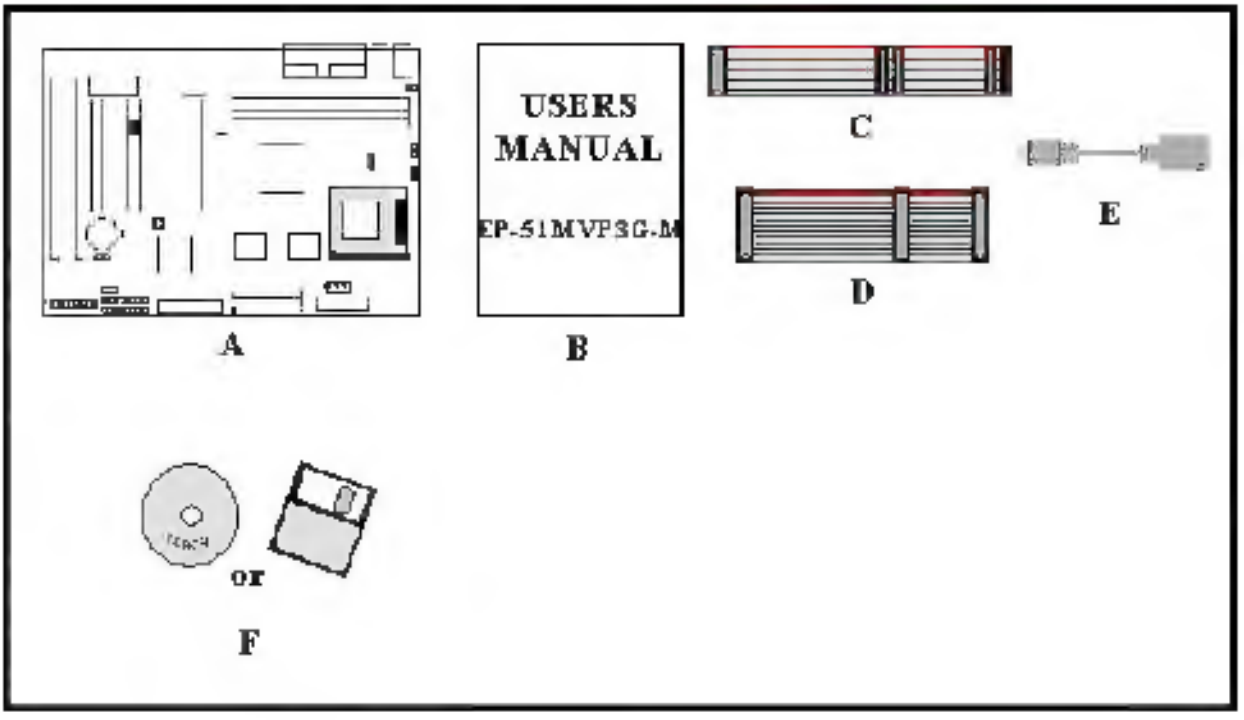
The specification is subject to change without notice.

V011

Components Checklist

Please check your package which should include all items listed below. If you find any item damaged or missed, please contact your supplier.

- ✓ A. (1) One mainboard
- ✓ B. (1) One user's manual
- ✓ C. (1) Floppy ribbon cable
- ✓ D. (1) IDE ribbon cables
- E. (2) PS/2 to AT keyboard connector adapter (optional)
- ✓ F. (1) Ultra_DMA IDE driver diskette
  (1) AGP Drivers



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Chapter 1
Introduction

This mainboard is a high performance system hardware based on Intel Pentium processor and is equipped with an AGP slot, four PCI slots, three standard ISA slots, Super Multi-I/O controller and dual port PCI-IDE connectors for the future expansion. The hardware dimension is 305mm x 200mm with a four-layer-design technology.

Specification

- VIA Apollo MVP3 AGP/PCIset chipset.
- Intel **Pentium®** Processor, Pentium Processor with MMX technology, AMD K5/K6, Cyrix 6x86L/6x86MX & *idt* C6 operating at **120 ~ 500 MHz** with **321 ZIF socket** 7 provides scalability to accept faster Processors in the future.
- Supports up to 384 MegaBytes of memory (168-Pin DIMM SOCKET x 3)
- Supports 1024KB (Optional) L2 **Cache**
- Supports two 16 bit ISA slots ,five 32 bit PCI slots and an AGP slot and provides two independent high performance PCI IDE interfaces capable of supporting **PIO Mode 3/4 and *Ultra-DMA33*** devices
- Supports **ATAPI** (e.g. **CD-ROM**) devices on both IDE interfaces.
- Supports a floppy port, a parallel port (EPP,ECP port), two serial ports (16550 Fast UART compatible), 2 USB Ports, a PS/2 style mouse connecter and a PS/2 style keyboard connector.
- Supports Award Plug & Play BIOS
- Supports CPU Hardware sleep, APM (Advanced Power Management) and *ACPI (Advanced Configuration Power Interface)*
- Supports an *ATX power supply connector* for a *Remote On/Off* , a *Phone-Ring Power On* and a *Keyboard Power On* Function
- Supports *Switching Regulator* for CPU power supply, and *single jumper for CPU working voltage selection.*
- *Supports ESDJ (Easy Setting Dual Jumper) function for CPU selection.*
- *Support hardware monitor function.*

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Chapter 2
Hardware design

2-1 Mainboard Layout

This mainboard is designed with VIA Apollo MVP3 AGP/PCIset chipset which is developed by VIA Corporation to fully support Pentium Processor PCI/ISA system. By providing a massive increase in the bandwidth available between the video card and the processor (66MHz), the unique feature of AGP supported by VIA Apollo MVP3 chipset improves the speed of rendering and texturing for 3D graphics. The chipset also provides an integrated IDE controller with two high performance IDE interfaces for up to four IDE devices (hard devices, CD-ROM device, etc). The Winbond W83877TF Super I/O controller provides the standard PC I/O function, one floppy interface, two 16 Byte FIFO serial ports and one EPP/ECP capable parallel port. This mainboard layout is shown in the next page for user's reference. **Care must be taken** when inserting memory modules, CPUs or even plugging PCI card into associated slots to avoid damaging any circuits or sockets on board. A cooling fan is strongly recommended when installing Pentium/Pentium MMX/K5/K6/6x86/6x86L/6x86MX/C6 processor due to possible overheat.

This mainboard supports a minimum of 8MB and a maximum of 384MB of System Memory while Onboard 1024KB cache to increase system performance.

This mainboard supports standard Fast Page, EDO (Extended Data Out or Hyper Page Mode) or synchronous DRAM. **This mainboard** provides two 168-pin DIMM sites for memory expansion. The sockets support 1M x 64 (8MB), 2M x 64 (16MB), 4M x 64 (32MB), and 8M x 64 (64MB) single-sided or double-sided memory modules. The memory timing requires 70 ns Fast page devices or 60 ns EDO DRAM. (DRAM Modules may be parity [x36] or non-parity [x32]

This mainboard supports **two Onboard PCI IDE** connectors, and automatically detects IDE harddisk type by BIOS utility automatic.

This mainboard supports Award Plug & Play BIOS for the ISA and PCI cards. The BIOS can be located in Flash EPROM which can replace BIOS code easily if necessary.

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EP-51MVP3G-M Layout

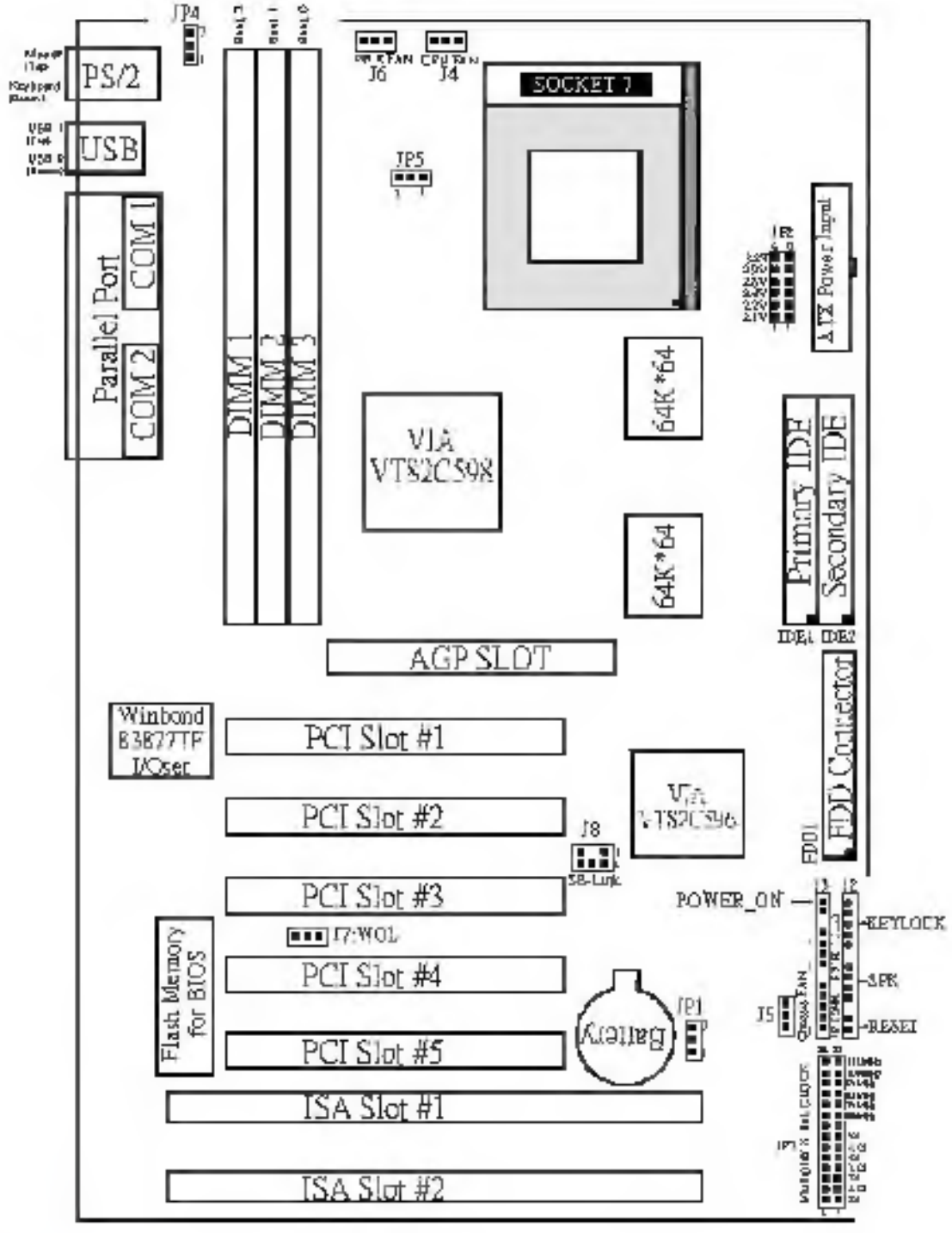

Figure 2-1

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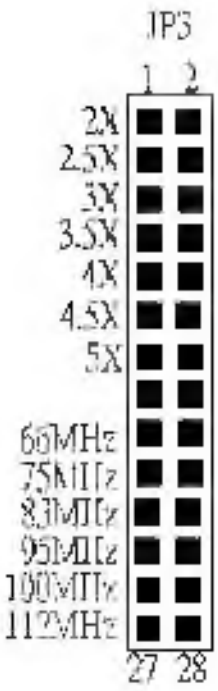
2-2 Connectors and Jumpers

This section describes the connectors and jumpers equipped in the mainboard. Please refer to **Figure 2-1** for the location of each connector and jumper.



Pentium/MMX AMD K5/K6 *idt*-C6	JP3		Cyrix / IBM 6x86L/MMX II
	Multipher	Bus CLOCK	
166MHz	2.5X	66MHz	MX-PR200
		75MHz	MII/MX-PR233
		83MHz	MII/MX-PR266
250MHz		100MHz	MII/MX-PR333
200MHz	3X	66MHz	MII/MX-PR233
		75MHz	MII/MX-PR266
250MHz		83MHz	MII/MX-PR333
300MHz		100MHz	MII/MX-PR350
200MHz	3.5X	66MHz	MII/MX-PR300
		75MHz	MII/MX-PR333
		83MHz	MII/MX-PR350
333MHz		95MHz	
350MHz		100MHz	
266MHz	4X	66MHz	MII/MX-PR333
		75MHz	MII/MX-PR350
333MHz		83MHz	
400MHz		100MHz	
300MHz	4.5X	66MHz	
450MHz		100MHz	
333MHz	5X	66MHz	
500MHz		100MHz	

JP2:

CPU Vcore voltage selection : For Pentium Processor with MMX technology, AMD K6 and Cyrix 6x86L/6x86MX/M II

1-7 : 2.1V Reserved
2-8 : 2.2V Reserved for AMD K6-2 (3D) CPUs
3-9 : 2.4V Reserved
4-10 : 2.8V for Pentium MMX and Cyrix 6x86L
5-11 : 2.9V for AMD K6-PR2-166/200MHz and Cyrix 6x86MX/M II
6-12 : 3.2V for AMD K6-PR2-233MHz

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Please install the motherboard into the chassis.

Now that your motherboard is installed you are ready to connect all your connections (figure 2-2).

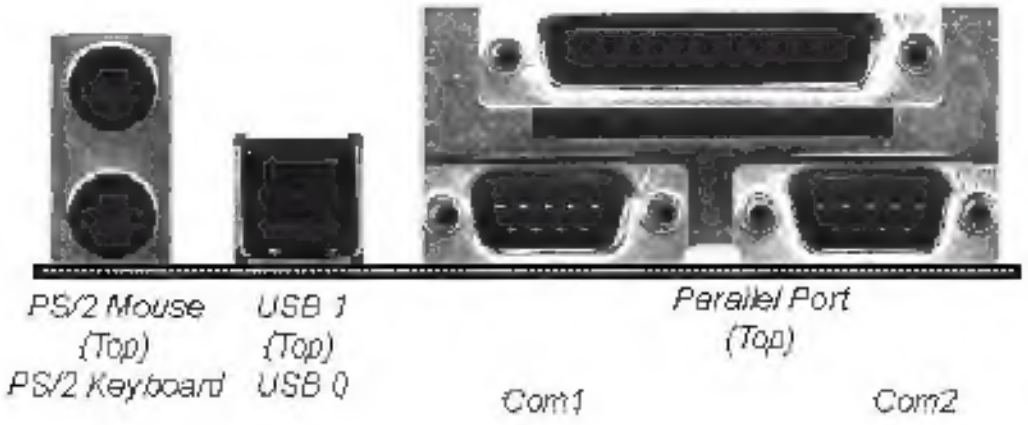

Figure 2-2

J2: Keylock, Speaker, Reset

J3: IR Conn. TB-LED, HDD-LED, POWER_ON

J4: CPU Fan Power
- A plug-in for the CPU Fan Power

J5: POWER Supply FAN POWER
- A plug-in for Power Supply Fan

J6: Chassis Fan Power
- A Plug-in for the chassis Fan Power

J7: WOL (Wake on Lan) Connector

J8: SB_Link Header

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J2 1

KeyLock - Keyboard lock switch & Power LED connector

1. Power LED(+) 4. Keylock
2. N/C 5. GND
3. GND

1

Speaker - Connect to the system's speaker for beeping

1. Speaker 3. GND
2. N/C 4. GND

Reset - Closed to restart system.

J3 1

IR Connector

1. VCC 4. GND
2. NC 5. IRTX
3. IRRX

\+ **IDE LED indicator** - LED ON when Onboard PCI IDE Hard disks is activate

\+ **Turbo LED indicator** - LED ON when higher speed is selected

Power On/Off - This is connected to the power button on the case. Using the Soft-Off by Pwr-BTTN feature, you can choose either Instant Off (turns system off immediatly), or 4 sec delay (you need to hold the button down for 4 seconds before the system turns off). When the system is in 4 sec delay mode, this mainboard has added a special feature to make the system go into suspend mode when the button is pressed momentarily.

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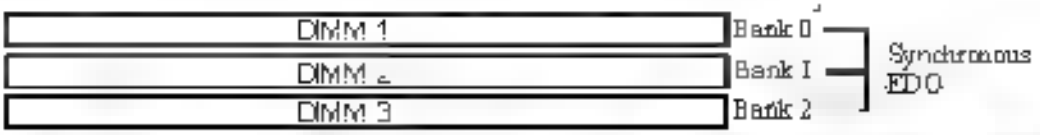
2-3 System Memory Configuration

This mainboard supports different type of settings for the system memory. The following figures and table provides all possible memory combinations.



Total Memory	DIMM 1 (Bank 0)	DIMM 2 (Bank 1)	DIMM 3 (Bank 2)
= 128MB Maximum	EDO/SDRAM* 8MB, 16MB, 32MB, 64MB, 128MB X 4	None	None
= 256MB Maximum	EDO/SDRAM* 8MB, 16MB, 32MB, 64MB, 128MB X 4	EDO/SDRAM* 8MB, 16MB, 32MB 64MB, 128MB X	None
= 384MB Maximum	EDO/SDRAM* 8MB, 16MB, 32MB, 64MB, 128MB X 4	EDO/SDRAM* 8MB, 16MB, 32MB, 64MB, 128MB X	EDO/SDRAM* 8MB, 16MB, 32MB, 64MB, 128MB X

** SDRAM only supports 8, 16, 32, 64, 128MB DIMM modules*

Table 4

This mainboard supports 2 kinds of powerful and flexible SDRAM frequency selections. These can be synchronous with CPU bus clock or fixed as 66MHz. By implementing the VCS (Virtual Clock Synchronization technology this mainboard refers to the use of delay clock-loop (DLL to enable synchronous and pseudo synchronous operation of the processor and DRAM, AGP and PCI buses. The JP5 allows user to set the SDRAM Frequency between 66~100MHz.

JP5 ***SDRAM CLOCK Selection***

1-2 SDRAM=CPU (Default)

2-3 SDRAM=AGP (2/3 CPU CLOCK)

Jumper's position:

1-2 Pseudo-synchronous Status(Fixed as 66MHz

A more stable and compatible operation condition for non-100MHz based SDRAM when you are using 100MHz based CPU. This setting is suitable for those users who are like to remain the usage of current SDRAM module.

2-3 Synchronous Status(SDRAM Clock = CPU Bus Clock)

Increasing the bus speeds from the traditional 66MHz to 100MHz greatly improves system performance because the speed at which data traveling between the CPU and memory is increased by 50%. However, there is one thing you should bear in mind. *Please make sure you are using 125MHz-8) based or above SDRAM module.*

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2-4 ATX Power ON/OFF Control

This mainboard equips an ATX power connector which is a single 20-PIN input device for an ATX power supply (see Figure 2-2). An ATX power supply provides a built-in Remote Power ON/OFF function. To implement the function, a momentary switch which is normally open should be connected to the position J3 (PIN 12 & 13) as the system's power ON/OFF button. Note that an AT power supply does not offer this function.

Based on the ATX power connector, this mainboard has been designed to support both *ACPI and Soft-OFF functions*. According to the definition of ACPI, *a Suspend mode will be enabled while you push the J3 (system power ON/OFF) button less than 4 seconds. Nevertheless, the system will be turned off by pressing for more than 4 seconds*. Regarding the Soft-OFF (coming from this mainboard onboard circuit controller), it is another way to turn off your system. Your system can be shut down automatically by an operation system such as Windows 95.

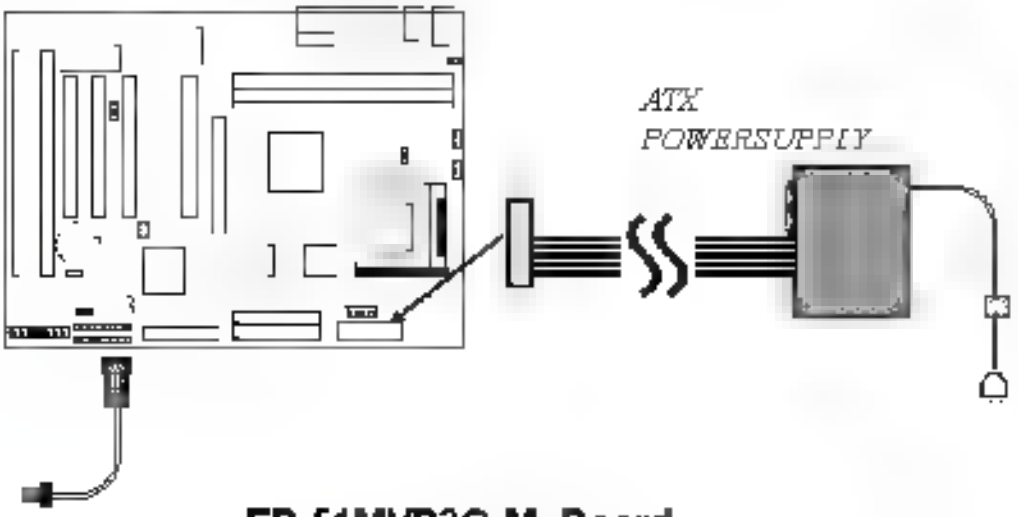

Figure 2-2. Simple ATX Power ON/OFF Controller

2-5 External Modem Ring-in Power ON Functions

On the basis of bounded functions in I/O chipset, the two serial ports are able to support the External Modem Ring-in Power ON function. Once users connect the external modem to COM1 or COM2, this mainboard mainboard allows users to turn on their system through the remote and host's dial-up control.

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2 5 External Modem Ring in Power ON and Keyboard Power ON Functions

On the basis of bounded functions n I/O chipset, the two serna ports are abie to support the Externa Modem Rung-in Power ON function Once users connect the externa modem o COM1 or COM2 his mainboard mainboard a ows users to turn on their system through the remote and host's dia up contro

Exci usiveKeyboardPowerONFunction

To nnovate a nique feature to benefit sers, we devoted ourse ves to create the eas est and most convenient way to turn on your system based on the the ATX power supp y This function is ava ab e on y nder system being connected to ATX power supp y

How to work with it

Step 1 Please p ace JP4 at the position 2 3 after you finished the system insta ation

JP4 ***Keyboard Power on Selection***

1 2 Disabled defaun.

2 3 Enabled

Step 2 You can eny oy the Keyboard Power ON function by *press ng any 1 or 2 keys on you keyboard at the same time* for 1 2 seconds Your system wi be turned on automatica y, after re eas ng the keys To power off you system, you can use the Soft-OFF funct on under Windows 95

Notes

1 The number of keys needed to turn on a system depends on the mode of keyboard you are appp y ng due to different oadings on different keyboards Here, we wou d ke to suggest you push 2 keys at the same time

2 Inte ATX version 2 0 spec f cat on has recommended you use the power supp y with 0 72A(720mA With our EP 5 MVP3G M mainboard, *the 5.0VSB standby power on y has to be > = 0 1A(100mA)* then you can en oy this nique benefit However the ATX power supp y wh ch s < 0 1 100mA s ti app icab e to your system by p aced JP4 at the posit on 2 to d sable th s feature

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2-6 Integrated PCI Bridge

This mainboard utilizes **VIA Apollo MVP3 AGP/PCIset** chipset to support Intel Pentium Processor PCI/ISA system. The VIA Apollo MVP3 chipset consists of the 82C598AT system controller (TXC) and the 82C597AT PCI/AGP Accelerator (ACP). It supports Intel processor interface with Dynamic Deep Pipelined PCI bus cycle, and PCI burst read/write capability. In addition, it provides high performance PCI arbitor to support four PCI Masters. Rotating Priority Mechanism and Hidden Arbitration Scheme Minimizes Arbitration Overhead.

There are four interrupts on each PCI slot: PCIA#, INTB#, INTC# and INTD#. Since this mainboard adapts the PCI to configuration with the system I/O. Setup utility. When the system is turned on after adding a PCI add-in card, the BIOS will automatically configure interrupts, DMA channels, I/O space, and other parameters. You do not have to configure jumpers or worry about potential resource conflicts. Because PCI and ISA interrupts are shared, you must specify the interrupt used by ISA add-in cards in the BIOS Setup utility.

However, for a "Legacy card" such as plugging a parallel card and relative into an ISA slot, after plugged in the system, modification on the **ROM SETUP UTILITY** becomes necessary. First of all, you must enter **PCI CONFIGURATION SETUP** utility from the **ROM SETUP UTILITY** main menu to set 'ISA' for the **PCI IDE IRQ MAP TO**.

Secondly, you must enter the **CHIPSET FEATURES SETUP UTILITY** from the **ROM SETUP UTILITY** main menu and set 'Disabled' for the **'Onboard Primary PCI IDE** and the **Onboard Secondary PCI IDE**. When plugging PCI/ISA add-in cards into the system. You should set 'Enabled' for the **Onboard Primary and Secondary PCI IDE** from the **CHIPSET FEATURES SETUP UTILITY** too.

If you can set the system interrupt request (IRQ) for some 'Legacy cards' which have on parallel card and relative, refer to user's manual of the card to proper system IRQ, usually IRQ5 or IRQ7. Primary is plugged into INTA and Secondary is plugged into INTB. If the card is plugged into slot 1 marked PCI#1, you cannot use second slot marked PCI#2 because the secondary INT signal is INTB from the slot refer to Page 2-11 of your mainboard. Then you enter the **PCI CONFIGURATION SETUP** utility from the **ROM SETUP UTILITY** main menu and set 'Disabled' for the 'PCI IDE IRQ MAP TO'. This depends on the slot # where the Legacy card is plugged.

3-1 STANDARD CMOS SETUP

Choose "STANDARD CMOS SETUP" in the CMOS SETUP UTILITY Menu (Fig. 3-1). The STANDARD CMOS SETUP allows user to configure system setting such as the current date and time, type of hard disk installed, floppy type, and display type. Memory size as auto-detected by the BIOS and displayed for your reference. When a field is highlighted (use direction keys to move cursor and <Enter> key to select) the entries in the field will be changed by pressing <PgDn> or <PgUp> keys or user can enter new data directly from the keyboard.

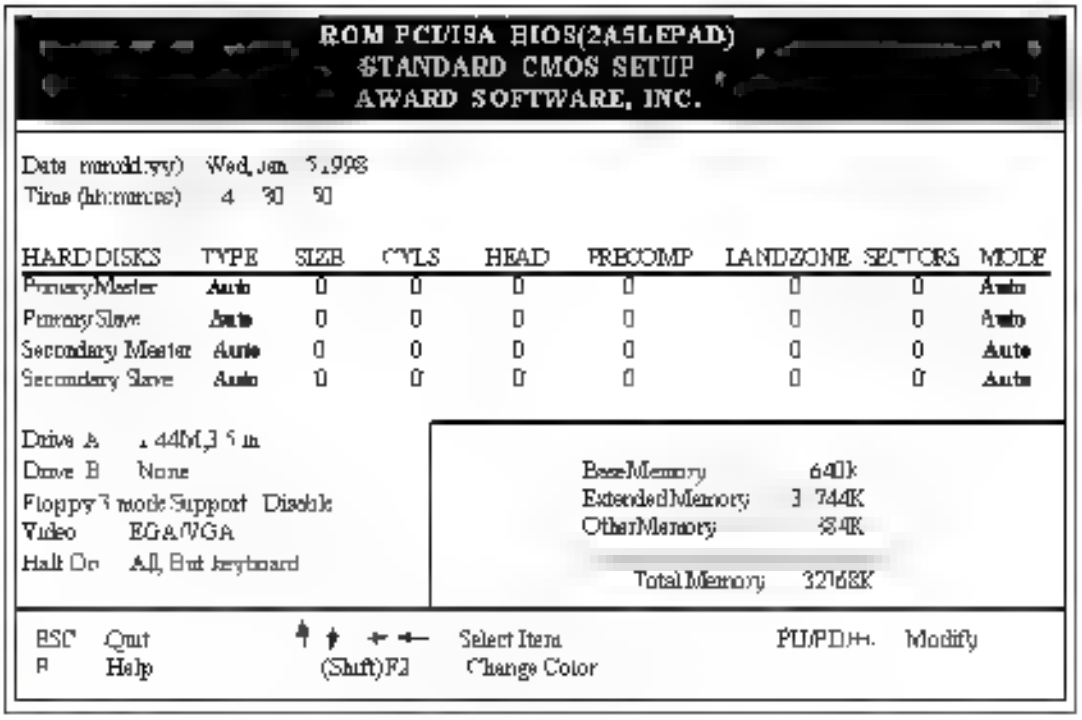

Figure 3-2 STANDARD CMOS SETUP

NOTE: If the Primary Master/Slave and the Secondary Master/Slave are set as "Auto", the hard disk size and mode will be auto-detected.

NOTE: The **'Halt On'** field is to determine when to halt the system by the BIOS if an error occurs.

3-2 BIOS FEATURES SETUP

By selecting the **"BIOS FEATURES SETUP"** option in the **CMOS SETUP UTILITY** menu, user can change system related parameters in the displayed menu. This menu shows all of the manufacturer's default values of this mainboard. Again, user can move the cursor by pressing direction keys and <PgDn> or <PgUp> keys to modify the parameters. Pressing [F1] key to display help message of the selected item.

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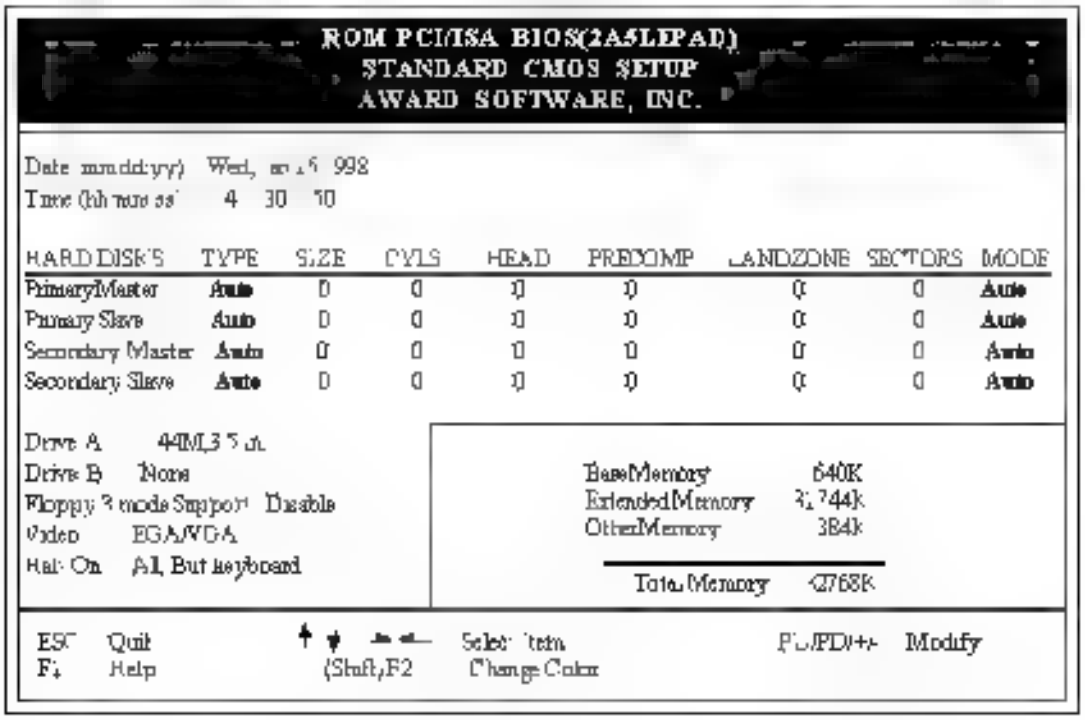
3-1 STANDARD CMOS SETUP

Choose "**STANDARD CMOS SETUP**" in the **CMOS SETUP UTILITY** Menu (Fig 3-1). The **STANDARD CMOS SETUP** allows user to configure system setting such as the current date and time type of hard disk installed floppy type and display type Memory size is auto-detected by the BIOS and displayed for your reference When a field is highlighted use direction keys to move cursor and <Enter> key to select the entries in the field will be changed by pressing <PgDn> or <PgUp> keys or user can enter new data directly from the keyboard



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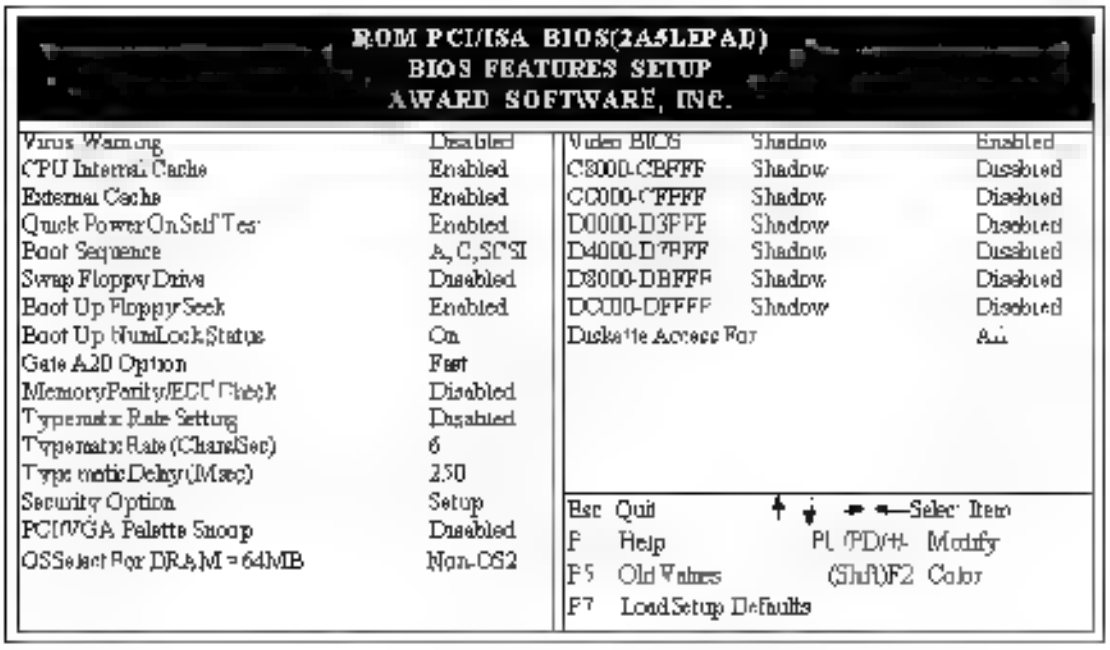

Figure3-3 BIOSFEATURES SETUP

Note The **Security Option** contains **'setup'** and **'system'** The **"setup'** indicates that the password setting is for CMOS only while the **'system'** indicates the password setting is for both CMOS and system boot up

- **Virus Warning:** This category flashes on the screen During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and an error message will appear You should then run an anti virus program to locate the virus Keep in mind that this feature protects only the boot sector, not the entire hard drive Default value is Disabled

  Enabled Activates automatically when the system boots up causing a warning message to appear when any attempt to access the boot sector or hard disk partition table

  Disabled No warning message to appear when any attempt to access the boot sector or hard disk partition table

- **CPU Internal Cache External Cache:** These two categories speed up memory access However, it depends on CPU chipset design The default value is Enabled If your CPU is without Internal Cache then this item "CPU Internal Cache" will not be shown

  Enabled Enable cache

  Disabled Disable cache

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- **Quick Power On Self Test**. This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some checking items during POST.
  Enabled Enable quick POST
  Disabled. Normal POST

- **Boot Sequence** This category determines which drive is searched first for the O/S (Operating System). The default value is A,C.
  A,C: The system will search for floppy disk drive first then hard disk drive.
  C,A The system will search for hard disk drive first then floppy disk drive.

- **Swap Floppy Drive**: This will swap your physical drive letters A&B if you are using two floppy disks. The default value is Disabled.
  Enabled Floppy A & B will be swapped under the O/S
  Disabled: Floppy A & B will be not swapped.

- **Boot Up Floppy Seek**: During Power On-Self-Test (POST), BIOS will determine if the installed floppy drive is 40 or 80 tracks. Only 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks. The default value is Enabled.
  Enabled BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS cannot tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
  Disabled: BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.

- **Boot Up NumLock Status**: The default value is On.
  On Keypad is number keys.
  Off: Keypad is arrow keys.

- **Boot UP System Speed**: Select default system speed. The system will run at the selected speed after the system boots.
  High Set the speed to high.
  Low Set the speed to low.

- **Gate A20 Option** This refers to the way the system addresses memory above 1MB (extended memory). The default value is Fast.
  Normal: The A20 signal is controlled by keyboard controller or chipset hardware.
  Fast : The A20 signal is controlled by Port 92 or chipset specific method.

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- **Typematic Rate Setting**: This determines the typematic rate
  Enabled Enable typematic rate and typematic delay programming
  Disabled: Disable typematic rate and typematic delay programming. The system BIOS will use default value of these items and the default is controlled by the keyboard

- **TypematicRate(Chars/Sec)**

6: 6 characters per second	**8: 8 characters per second.**
10: 10 characters per second	**12: 12 characters per second.**
15: 15 characters per second	**20: 20 characters per second.**
24: 24 characters per second	**30: 30 characters per second.**

- **Typematic Delay(Msec)**: This determines the time between the first and second character displayed, when holding a key
  250: 250msec
  500: 500msec
  750: 750msec
  1000: 1000msec

- **Security Option**: This category allows you to limit access to the system and Setup, or just to Setup. The default value is Setup
  System: The system will not boot and the access to Setup will be denied if the correct password is not entered at the prompt
  Setup: The system will boot, but the access to Setup will be denied if the correct password is not entered at the prompt

- **PCI/VGA Palette Snoop**: This field controls the ability of a primary PCI VGA controller to share a common palette when a snoop write cycle exists with an ISA video card. The default value is Disabled
  Enabled: If an ISA card connects to a PCI VGA card via the VESA connector and the ISA card connects to VGA monitor and uses the RAMDAC of PCI card, the PCI/VGA Palette Snoop is enabled
  Disabled: Disable the VGA card Palette snoop function

- **Video BIOS Shadow**: It determines whether video BIOS will be copied to RAM. However, it is optional from chipset design. Video Shadow will increase the video speed.
  Enabled Video shadow is enabled
  Disabled Video shadow is disabled

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- C8000 CBFFF Shadow
  CC000 CFFFF Shadow
  D0000 D3FFF Shadow
  D4000 D7FFF Shadow
  D8000 DBFFF Shadow
  DC000 DFFFF Shadow

These categories determine whether optional ROM will be copied to RAM by 16K byte or 32K byte per unit and the size depends on the chipset.
Enabled Optional shadow is enabled.
Disabled Optional shadow is disabled.

3-3 CHIPSET FEATURES SETUP

Choose the "**CHIPSET FEATURES SETUP**" in the **CMOS SETUP UTILITY** menu to display the following menu.

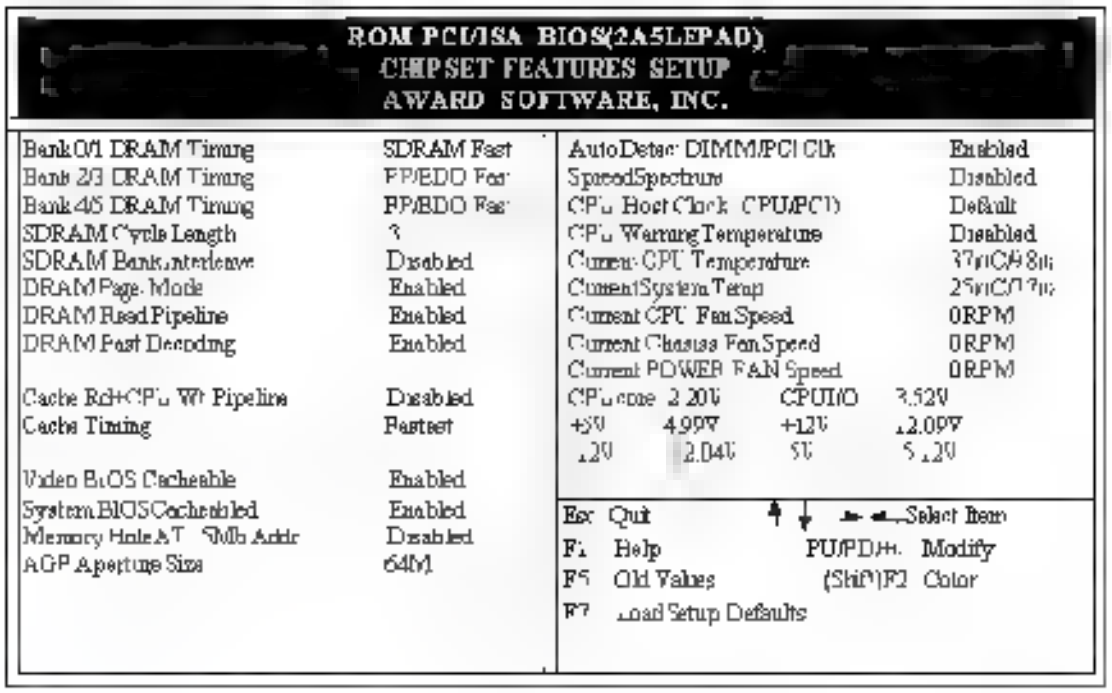

Figure 3-4 CHIPSET FEATURES SETUP

Note. When you insert slower memory modules in the system and set a faster timing, maybe the system will hang up.

- **SDRAM Bank Interleave: The default value is Disabled.**
  Disabled Normal Setting
  2 Bank/4 Bank SDRAM 2 or 4 Bank Interleave
- **Memory Hole at 15M-16M:** The default value is Disabled
  Disabled: Normal Setting
  Enabled This field enables the main memory 15M-16MB remap to ISA BUS
- **Read Around Write: The default value is Disabled.**
  Disabled Normal Setting
  Enabled This field enables the memory read around write cycle
- **Video RAM Cacheable** This option allows the CPU to cache read/writes of the video RAM. The default is Disabled
  Disabled *Reduced video performance*
  Enabled *This option allows for faster video access.*
- **AGP Aperture Size: The amount of the system memory that the AGP card is allowed to share. The options available are 4M, 8M, 16M, 32M, 64M, 128M, 256M. The default value is 64M.**
- **System/CPU Warning Temp: The default value is Disabled**
  Disabled Normal Setting
  Enabled The options available are 50C/122F~70C/158F
- **Current System Temp: This is the current temperature of the system**
- **Current CPU Temp. This is the current temperature of the CPU**
- **Current CPU Fan Speed: The current CPU fan speed in RPMs**
- **Current ChassisFan Speed: The current chassis fan speed in RPMs**
- **CPU(V) : The voltage level of the CPU(Vio/Vcore).**
- **+3.3V ±5V ±12V: The voltage level of the power supply**

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3. 4 POWER MANAGEMENT SETUP

Choose the "**POWER MANAGEMENT SETUP**" in the **CMOS SETUP UTILITY** to display the following screen. This menu allows the user to modify the power management parameters and IRQ's grams. In general, these parameters should not be changed unless it's absolutely necessary.

Figure 3-5 POWER MANAGEMENT SETUP

You can only change the content of **Doze Mode**, **Standby Mode**, and **Suspend Mode** when the **Power Management** is set to **User Define**.

Power Management: Use this to select your Power Management selection. The default is User define.

- ***Disabled***. *The system operates in NORMAL conditions (Non-GREEN), and the Power Management function is disabled.*
- ***Max. saving***: *Maximum power savings. Inactivity period is 1 minute in each mode.*
- ***Min. saving***: *Minimum power savings. Inactivity period is 1 hour in each mode.*
- ***User define***: *Allows user to define PM Timers parameters to control power saving mode.*

PM controlled APM: This option shows weather or not you want the Power Management to be controlled the Advanced Power Management (APM). The default is Yes.

- ***Yes***: *APM controls your PM.*
- ***No***: *APM does not control your PM.*

- **Video Off Method** This option allows you to select how the video will be disabled by the power management
  The default is V/H Sync+ Blank
  V/H Sync + Blank. System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer
  DPMS: Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values
  Blank Screen. System only writes blanks to the video buffer
- **Video Off option** Tells you what time frame that the video will be disabled under current power management settings
  The default is Standby
  Standby: Video powers off after time shown in standby mode setting
  Doze: Video powers off after time shown in doze mode setting
  Suspend. Video powers off after time shown in suspend mode setting
  N/A: Video power off not controlled by power management
- **MODEM Use IRQ** Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.
  Default is IRQ 3

  N/A: No IRQ is used. 3: IRQ 3
  4: IRQ 4 5: IRQ 5
  7: IRQ 7 9: IRQ 9
  10: IRQ 10 11: IRQ 11

  The EP-MVP3G-M supports HDD Power Down, Doze and Standby power saving functions when using the Intel Pentium II Processor
  The default is Disabled

- **Doze Mode**: The "Doze" mode timer starts to count when no "PM events" have occurred

- **Suspend Mode** This function works only when the Pentium II Processor is installed. The timer starts to count when "System Standby" mode timer is timed out and no "PM Events" are occurring. Valid range is from 1 minute up to 1 hour

- **HDD Power Down** HDD Standby timer can be set from 1 to 15 minute(s)

VGA Active Monitor: Use this option if your monitor has advanced power saving features
The default is Enabled
Enabled. Your monitor's power features will be included in power management.
Disabled: Your monitor's power features will not be included in power management.

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- **Soft-Off by PWR-BTTN** Use this to select your soft-off function.
  The default is Delay 4 sec.
  Instant Off *Turns off instantly*
  Delay 4 Second *Turns off after a 4 second delay. If momentary press of button the system will go into Suspend Mode. Press again to take system out of Suspend Mode*
- **Resume by Alarm** This option allows you to have the system turn on at a preset time each day or on a certain day. This option is only available when Power Loss Recovery is Enabled.
  The default is Enabled.
  Enabled *The system will turn on at the preset time*
  Disabled *The system will not turn on until you turn it on.*

  Date (of month) Alarm This is how you set the date that the system will turn on.
  The default is 0.
  0 *Setting this to 0 will turn the system on everyday at the preset time*
  1-31 *Represents the day of the month that you need the system to turn on*

  Time (hh mm ss) Alarm This sets the time that you need the system to turn on.
  The default is 08 00 00.

3-5 PNP/PCI CONFIGURATION

The PNP/PCI configuration program is for the user to modify the PCI/ISA IRQ signals when various PCI/ISA cards are inserted in the PCI or ISA slots.

WARNING Any misplacing IRQ could cause system can't pick out the resources.

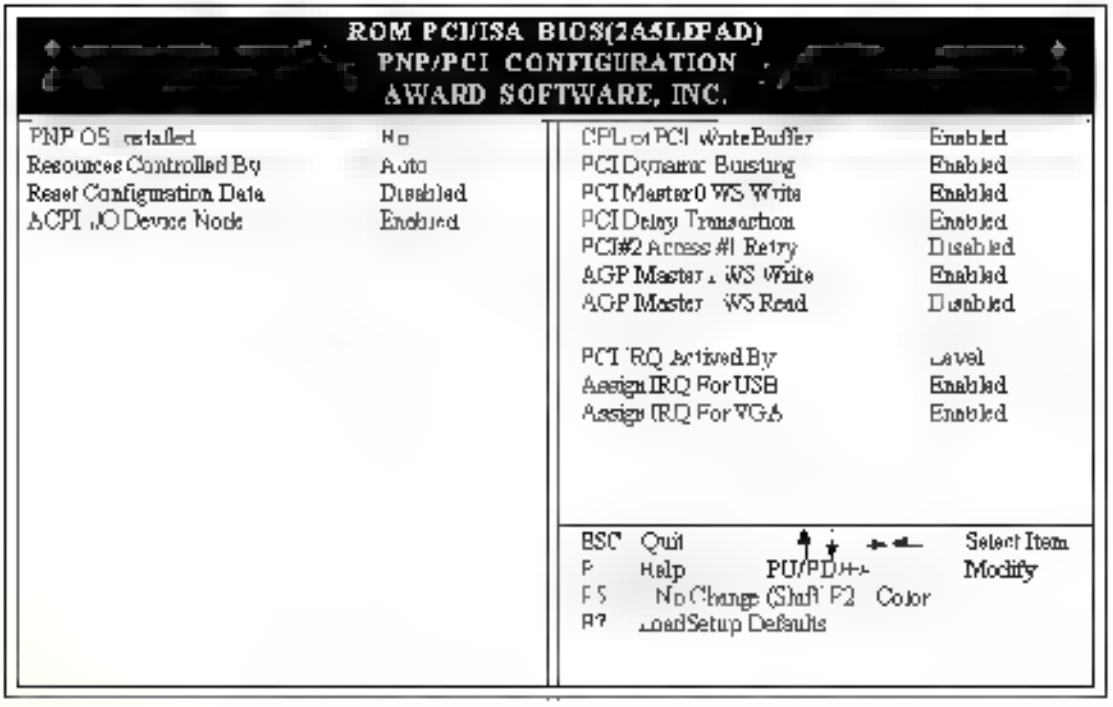

Figure3-6PCICONFIGURATIONSETUP

- **PNP OS Installed** Do you have a PNP OS installed on your system. The default is No.
  - ***Yes*** *Select if you are using a PNP OS*
  - ***No.*** *Select if your OS does not support PNP*
- **Resource Controlled By** The default value is Manual.
  - **Manual:** The field defines that the PNP Card's resource is controlled by manual. You can setup whether IRQ-X or DMA-X is assigned to PCI/ISA PNP or Legacy ISA Cards.
  - **Auto:** If your ISA card and PCI card are all PNP cards. Set this field to "Auto". The BIOS will assign the interrupt resource automatically.
- **Reset Configuration Data:** The default value is Disabled.
  - **Disabled:** Normal Setting.
  - **Enabled:** If you plug some Legacy cards in the system and record into ESCD (Extended System Configuration Data), You can set this field to be Enabled and to clear ESCD at one time when some Legacy cards are removed.
- **PCI/IDE IRQ Map To** The default value is PCI-AUTO.

  When you have true PCI cards plugged into the system, you will not need to change anything here in the **SETUP** program. However, if you do not know whether you are using a true PCI card, please refer to your PCI card user's manual for the details.

  When you have a Legacy card described in section 2-5, to plug into the system, a proper setting is extremely important or it may cause the system hung up. The diagram shown below tells you how the Rotating Priority Mechanism is designed.

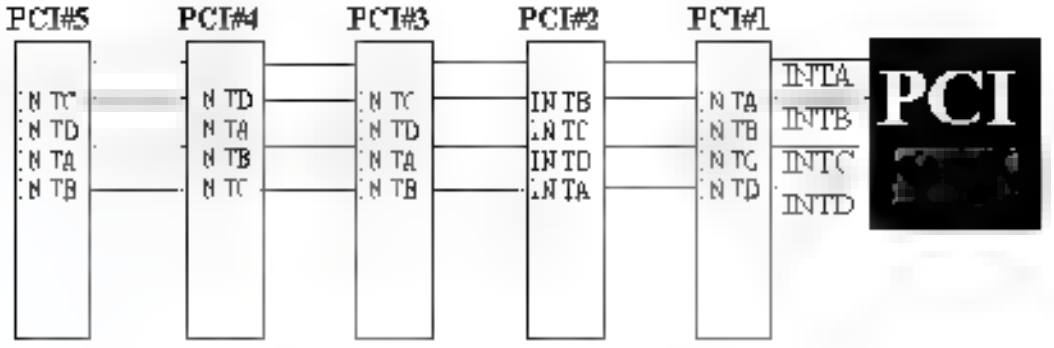

Figure 3-7 The Combination of PCI INT# lines

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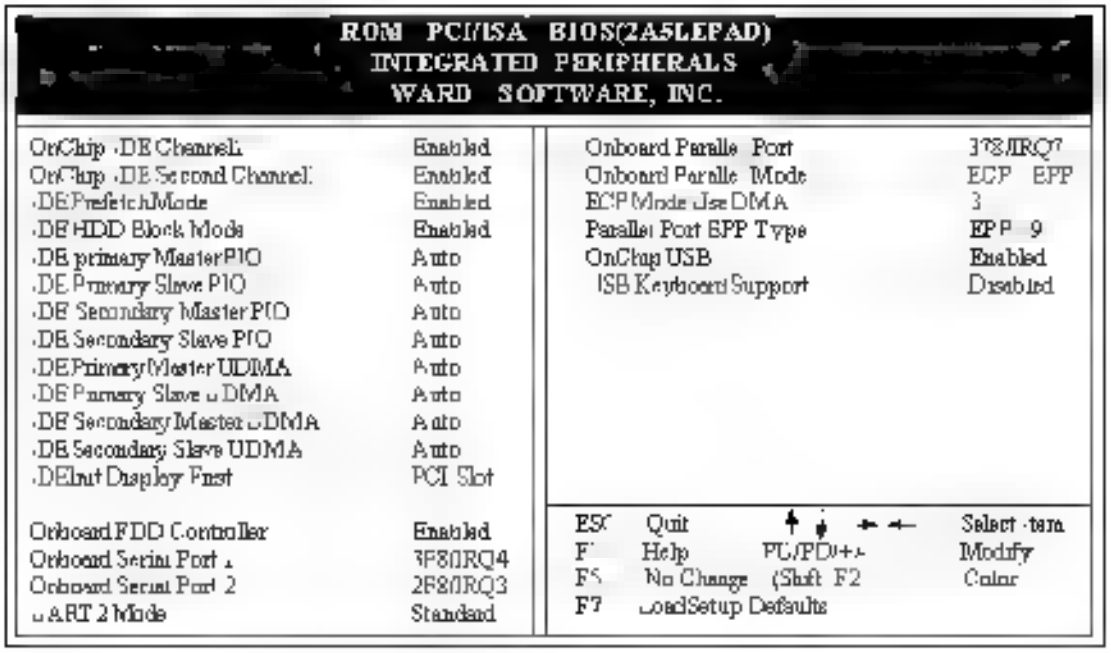
3-6 INTEGRATED PERIPHERALS



Note: If you don't use the Onboard IDE connector, but use On-card (PCI or ISA card) IDE connector. You have to set Onboard Primary PCI IDE: Disabled and Onboard Secondary PCI IDE: Disabled from CHIPSET FEATURES SETUP UTILITY.

The Onboard PCI IDE cable should be equal to or less than 18 inches (45 cm.).

- **IDE HDD Block Mode** The default value is Enabled.
  Enabled Enabled IDE HDD Block Mode. The HDD transfer rate is better than Disable.
  Disabled Disable IDE HDD Block Mode.

- **PCI Slot IDE 2nd Channel** The default value is Enabled.
  Enabled Enable secondary IDE port and BIOS will assign IRQ15 for this port.
  Disabled Disable secondary IDE port and IRQ15 is available for other device.

- **Onboard Primary PCI IDE.** The default value is Enabled.
  Enabled Enable Onboard 1st channel IDE port.
  Disabled Disable Onboard 1st channel IDE port. When use On-card (PCI or ISA card) IDE connector.

- **Onboard Secondary PCI IDE** The default value is Enabled.
  Enabled Enable Onboard 2nd channel IDE port.
  Disabled Disable Onboard 2nd channel IDE port. When use On-card (PCI or ISA card) IDE connector.

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- **IDE Primary Master PIO** The default value is Auto
  Auto BIOS will automatically detect the Onboard Primary Master PCI IDE HDD Accessing mode
  Mode0~4 Manually set the IDE Accessing mode

- **IDE Primary Slave PIO** The default value is Auto
  Auto BIOS will automatically detect the Onboard Primary Slave PCIIDE HDD Accessing mode
  Mode0~4 Manually set the IDE Accessing mode

- **IDE Secondary Master PIO** The default value is Auto
  Auto BIOS will automatically detect the Onboard Secondary Master PCI IDE HDD Accessing mode
  Mode0~4 Manually set the IDE Accessing mode

- **IDE Secondary Slave PIO** The default value is Auto
  Auto BIOS will automatically detect the Onboard Secondary Slave PCI IDE HDD Accessing mode
  Mode0~4 Manually set the IDE Accessing mode

- **Onboard FDC Controller** The default value is Enabled
  Enabled Enable the Onboard floppy drive interface controller
  Disabled Disable the Onboard floppy drive interface controller
  When using On-card ISA FDC's controller

- **Onboard UART 1** This field allows the user to select the serial port The default value is 3F8H/IRQ4
  COM1 Enable Onboard Serial port 1 and address is 3F8H/IRQ4
  COM2 Enable Onboard Serial port 1 and address is 2F8H/IRQ3
  COM3 Enable Onboard Serial port 1 and address is 3E8H/IRQ4
  COM4 Enable Onboard Serial port 1 and address is 2E8H/IRQ3
  Disabled Disable Onboard Serial port 1

- **Onboard UART 2** This field allows the user to select the serial port The default value is 2F8H/IRQ3
  COM1 Enable Onboard Serial port 2 and address is 3F8H/IRQ4
  COM2 Enable Onboard Serial port 2 and address is 2F8H/IRQ3
  COM3 Enable Onboard Serial port 2 and address is 3E8H/IRQ4
  COM4 Enable Onboard Serial port 2 and address is 2E8H/IRQ3
  Disabled Disable Onboard Serial port 2

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- **Onboard UART 2 Mode**: The default value is standard. This field allows the User to select the COM2 port that can support a serial Infrared Interface.
  Standard: Support a Serial Infrared Interface IrDA.
  HPSIR: Support a HP Serial Infrared Interface format.
  ASKIR: Support a Sharp Serial Infrared Interface format.

- **Onboard Parallel port**: This field allows the user to select the LPT port. The default value is 378H/IRQ7.
  378H : Enable Onboard LPT port and address is 378H and IRQ7.
  278H : Enable Onboard LPT port and address is 278H and IRQ5.
  3BCH : Enable Onboard LPT port and address is 3BCH and IRQ7.
  Disabled : Disable Onboard LPT port.

NOTE **Parallel Port address is 378H/3BCH that selects the rounting of IRQ7 for LPT1. Parallel Port address is 278H that selects the rounting of IRQ5 for LPT1.**

- **Parallel port Mode**: This field allows the user to select the parallel port mode. The default value is ECP+EPP.
  Normal : Standard mode IBM PC AT Compatible bi directional parallel port.
  EPP : Enhanced Parallel Port mode.
  ECP : Extended Capability Port mode.
  EPP+ECP : ECP Mode & EPP Mode.

  ECP Mode USE DMA: This field allows the user to select DMA1 or DMA3 for the ECP mode. The default value is DMA3.
  DMA1 : The field selects the rounting of DMA1 for the ECP mode.
  DMA3 : The field selects the rounting of DMA3 for the ECP mode.

3-7 LOAD SETUP DEFAULTS

The "LOAD SETUP DEFAULTS" function loads the system default data directly from ROM and initializes the associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.

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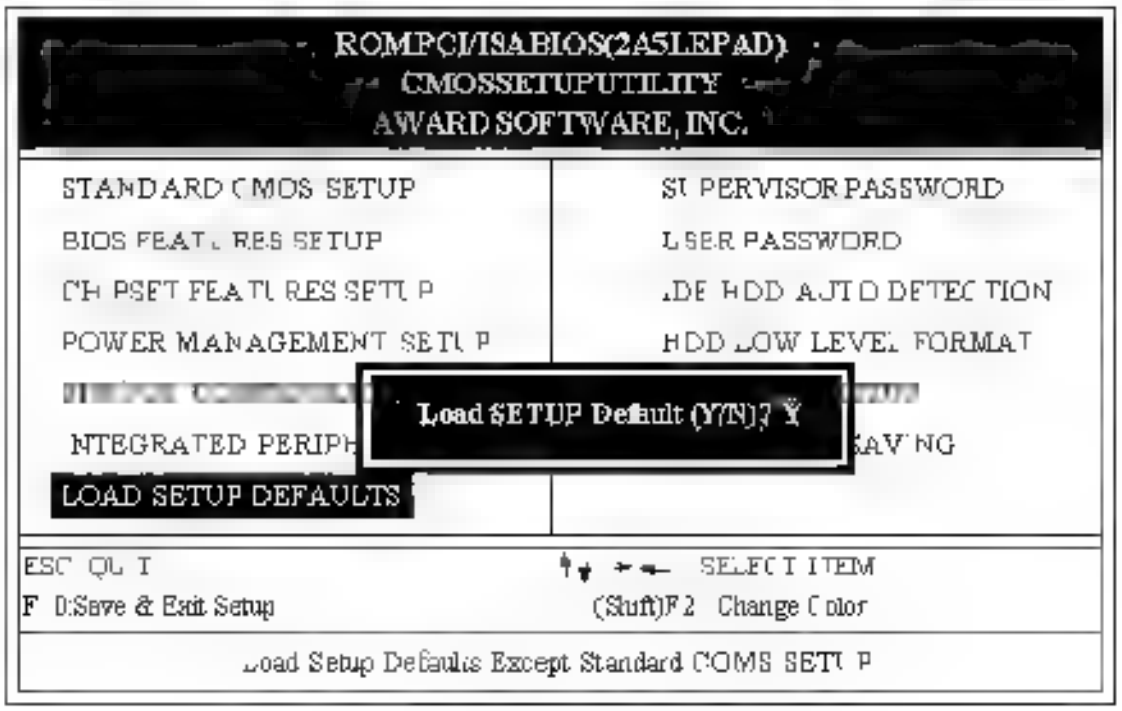

Figure3-8LOADSETUP DEFAULT

3-8 CHANGE SUPERVISOR or USER PASSWORD

To change the password, choose the "**SUPERVISOR PASSWORD or USER PASSWORD**" option from the **CMOS SETUP UTILITY** menu and press [Enter].

NOTE Either "**Setup**" or "**System**" must be selected in the "**Security Option**" of the **BIOS FEATURES SETUP** menu. (Refer to Figure 3-3 for the details.)

If CMOS is corrupted or the option is not used, a default password stored in the ROM will be used. The screen will display the following message:

Enter Password:

Press the [Enter] key to continue after proper password is given.

2. If CMOS is corrupted or the option was used earlier and the user wish to change default password, the **SETUP UTILITY** will display a message and ask for a confirmation.

Confirm Password:

3. After pressing the [Enter] key (ROM password if the option was not used) or current password (user-defined password), the user can change the password and store new one in CMOS RAM. A maximum of 8 characters can be entered.

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3-9 IDE HDD AUTO DETECTION

The "IDE HDD AUTO DETECTION" utility is a very useful tool, especially when you do not know what kind of hard disk type you are using. You can use this utility to detect the correct disk type installed in the system automatically. But now you can set **HARD DISK TYPE** to **Auto** in the **STANDARD CMOS SETUP**. You do not need the "IDE HDD AUTO DETECTION" utility. The BIOS will Auto-detect the hard disk size and mode on display during POST.

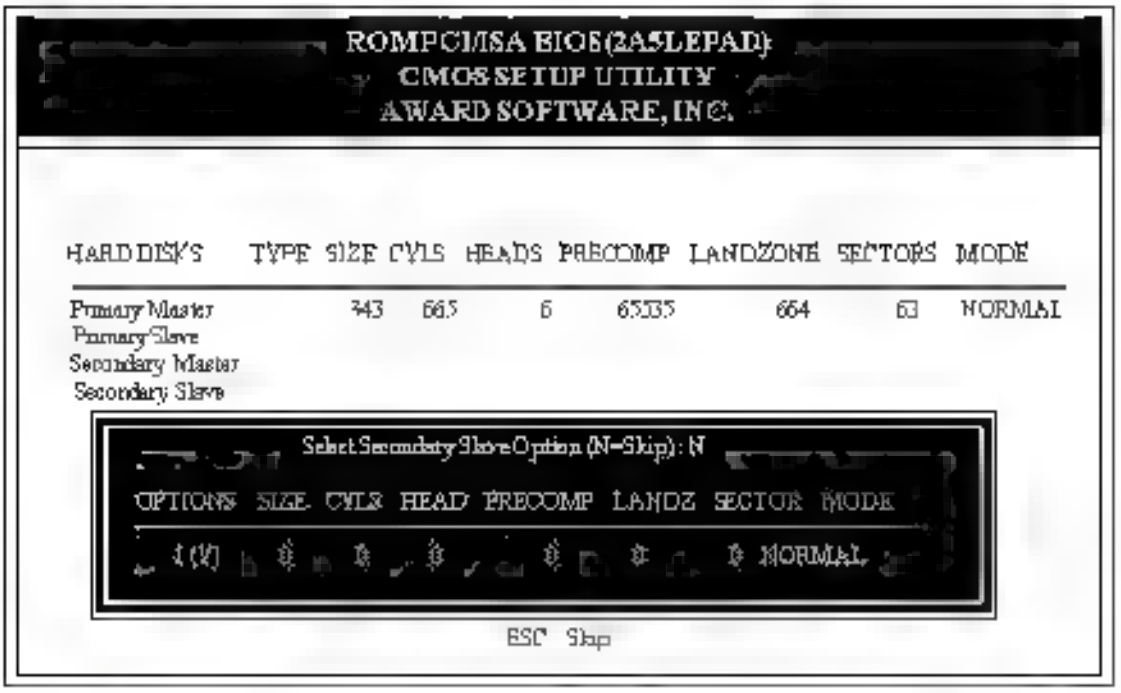

Figure 3-9 IDE HDD AUTO DETECTION

NOTE. HDD Modes

The Award BIOS supports 3 HDD modes: NORMAL, LBA and LARGE.

NORMAL mode

Generic access mode that is neither the BIOS nor the IDE controller will make transformations during accessing.

The maximum numbers of cylinders, head & sectors for NORMAL mode are 1024, 16 and 63.

no. Cylinder	1024
x no. Head	16
x no. Sector	63
x no. per sector	512
528 Megabytes	

If an user sets the HDD to NORMAL mode, the maximum accessible HDD size will be 528 Megabytes even though its physical size may be greater than that.

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LBA (Logical Block Addressing) mode: This is a new HDD accessing method to overcome the 528 Megabyte bottleneck.

The number of cylinders, heads and sectors shown in the setup may not be the number physically contained in the HDD.

During the HDD accessing, the IDE controller will transform the logical address described by sector, head and cylinder into its own physical address inside the HDD.

The maximum HDD size supported by LBA mode is 8.4 Gigabytes which is obtained by the following formula:

no. Cylinder	1024
x no. Head	255
x no. Sector	63
x bytes per sector	(512)
	8.4 Gigabytes

LARGE mode: This is an extended HDD access mode supported by Award Software.

Some IDE HDDs contain more than 1024 cylinders without LBA support. In some cases, user does not want LBA. The Award BIOS provides another alternative to support these kinds of LARGE mode.

CYLS.	HEADS	SECTOR	MODE
120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks DOS (or other OS) that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside INT 13h in order to access the right HDD address.

Maximum HDD size:

no. Cylinder	1024
x no. Head	32
x no. Sector	(63)
x bytes per sector	(512)
	1 Gigabytes

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Note

To support LBA or LARGE mode of HDDs there must be some softwares involved. All softwares are located in the Award HDD Service Routine (INT 13h). It may fail to access a HDD with LBA (LARGE mode selected) if you are running under an Operating System which replaces the whole INT 13h. UNIX operating systems do not support either LBA or LARGE and must utilize the Standard mode. UNIX can support drives larger than 528MB.

3-10 HDD LOW LEVEL FORMAT

Interleave

Select the interleave number of the hard disk drive that you wish to perform a low level format on. You may select from 1 to 8. Check the documentation that came with the drive for the correct interleave number, or select 0 for automatic detection.

Auto scan bad track

This allows the utility to scan first then format by each track.

Start

Press <Y> to start low level format.

3-11 SAVE & EXIT SETUP

The "SAVE & EXIT SETUP" option will bring you back to boot up procedure with all the changes you just recorded in the CMOS RAM.

3-12 EXIT WITHOUT SAVING

The "EXIT WITHOUT SAVING" option will bring you back to normal boot up procedure without saving any data into CMOS RAM. All old data in the CMOS will not be destroyed.

Chapter 4
Technical Information

4-1 I/O & MEMORY MAP

MEMORY MAP

Address Range	Size	Description
[00000-9FFFF]	640K	Conventional memory
[80000-9FBFF]	127K	Extended Conventional memory
[9FC00-9FFFF]	1K	Extended BIOS data area (PS/2 mouse is installed)
[A0000-C7FFF]	160K	Available for HI DOS memory
[C8000-DFFFF]	96K	Available for HI DOS memory and adapter ROMs
[E0000-EFFFF]	64K	Available for UMB
[F0000-F7FFF]	32K	BIOS CMOS setup utility
[F8000-FCFFF]	20K	BIOS runtime service routine 2
[FD000-FDFFF]	4K	Plug and Play ESCD data area
[FE000-FFFFF]	8K	BIOS runtime service routine

I/O MAP

[000-01F]	DMA controller 1 Master
[020-021]	INTERRUPT CONTROLLER Master
[022-023]	CHIPSET control registers I/O ports
[040-05F]	TIMER control registers
[060-06F]	KEYBOARD interface controller (8042)
[070-07F]	RTC ports & CMOS I/O ports
[080-09F]	DMA register
[0A0-0BF]	INTERRUPT controller (Slave)
[0C0-0DF]	DMA controller 2 Slave
[0F0-0FF]	MATH COPROCESSOR
[1F0-1F8]	HARD DISK controller
[278-27F]	PARALLEL port 2
[2B0-2DF]	GRAPHICS adapter controller
[2F8-2FF]	SERIAL port 2
[360-36F]	NETWORK ports
[378-37F]	PARALLEL port 1
[3B0-3BF]	MONOCHROME & PARALLEL port adapter
[3C0-3CF]	EGA adapter
[3D0-3DF]	CGA adapter
[3F0-3F7]	FLOPPY DISK controller
[3F8-3FF]	SERIAL port

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4-2 TIME & DMA CHANNELS MAP

TIME MAP	TIMER Channel 0	System timer interrupt
	TIMER Channel 1	DRAM REFRESH request
	TIMER Channel 2	SPEAKER tone generator
DMA CHANNELS	DMA Channel 0	Available
	DMA Channel 1	Onboard ECP (Option
	DMA Channel 2	FLOPPY DISK (SMC CHIP)
	DMA Channel 3	Onboard ECP default
	DMA Channel 4	Cascade for DMA controller
	DMA Channel 5	Available
	DMA Channel 6	Available
	DMA Channel 7	Available

4-3 INTERRUPT MAP

NMI		Parity check error
IRQ (H/W)	0	System TIMER interrupt from TIMER 0
	1	KEYBOARD output buffer full
	2	Cascade for IRQ 8-15
	3	SERIAL port 2
	4	SERIAL port 1
	5	PARALLEL port 2
	6	FLOPPY DISK (SMC CHIP
	7	PARALLEL port
	8	RTC clock
	9	Available
	10	Available
	11	Available
	12	PS/2 Mouse
	13	MATH coprocessor
	14	Onboard HARD DISK (IDE1 channe
	15	Onboard HARD DISK (IDE2 channe

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4 4 RTC & CMOS RAM MAP

RTC & CMOS	00	Seconds
	01	Second alarm
	02	Minutes
	03	Minutes alarm
	04	Hours
	05	Hours alarm
	06	Day of week
	07	Day of month
	08	Month
	09	Year
	0A	Status register A
	0B	Status register B
	0C	Status register C
	0D	Status register D
	0E	Diagnostic status byte
	0F	Shutdown byte
	10	FLOPPY DISK drive type byte
	11	Reserve
	12	HARD DISK type byte
	13	Reserve
	14	Equipment type
	15	Base memory low byte
	16	Base memory high byte
	17	Extension memory low byte
	18	Extension memory high byte
	19- 2d	
	2E 2F	
	30	Reserved for extension memory low byte
	31	Reserved for extension memory high byte
	32	DATE CENTURY byte
	33	INFORMATION FLAG
	34 3F	Reserve
	40- 7F	Reserved for CHIPSET SETTING DATA

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APPENDIX A: POST CODES

ISA POST codes are typically output to port address 80h

POST(hex)	DESCRIPTION
01-02	Reserved
C0	Turn off OEM specific cache shadow
03	Initialize EISA registers (FISA BIOS only) 2 Initialize all the standard devices with default values Standard devices includes -DMA controller (8237) -Programmable Interrupt Controller (8259) -Programmable Interval Timer (8254) RTC chip
04	Reserved
05	Keyboard Controller Self Test 2 Enable Keyboard Interface
06	Reserved
07	Verifies CMOS's basic R/W functionality
C1	Auto-detection of onboard DRAM & Cache
C5	Copy the BIOS from ROM into E0000-FFFFF shadow RAM so that POST will go faster
08	Test the first 256K DRAM
09	OEM specific cache initialization (if needed)
0A	Initialize the first 32 interrupt vectors with corresponding interrupt handlers Initialize INT no from 33-120 with Dummy 'Suprious' Interrupt Handler 2 Issue CPUID instruction to identify CPU type 3 Early Power Management initialization (OEM specific)
0B	verify the RTC time is valid or not 2 Detect bad battery 3 Read CMOS data into BIOS stack area 4 PnP initializations including (PnP BIOS only) Assign CSN to PnP ISA card Create resource map from ESCD 5 Assign I/O & Memory for PCI devices (PCI BIOS only)

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POST(hex)	DESCRIPTION
[illegible]	Initialization of the BIOS Data Area (40:00 - 40:FF)
0D	Program some of the Chipset's value according to Setup (Early Setup Value Program) 2 Measure CPU speed for display & decide the system clock speed 3 Video initialization including Monochrome / CGA / EGA/VGA / if no display device found, the speaker will beep
[illegible]	Test video RAM (If Monochrome display device found) 2 Show messages including Award Logo, Copyright string, BIOS Date code & Part No OEM specific sign on messages Energy Star Logo ('Green BIOS ONLY') CPU brand, type & speed Test system BIOS checksum ('Non-Compress Version only)
0F	DMA channel 0 test
10	DMA channel 1 test
11	DMA page registers test
12-13	Reserved
14	Test 8254 Timer 0 Counter 2
15	Test 8259 interrupt mask bits for channel
16	Test 8259 interrupt mask bits for channel 2
17	Reserved
19	Test 8259 Functionality
1A-1D	Reserved
1E	If EISA NVM checksum is good, execute EISA initialization (EISA BIOS only)
1F-20	Reserved
30	Detect Base Memory & Extended Memory Size
31	Test Base Memory from 256K to 640K 2 Test Extended Memory from 1M to the top of memory

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POST(hex)	DESCRIPTION
32	Display the Award Plug & Play BIOS Extension message (PnP BIOS only) 2 Program all onboard super I/O chips (if any) including COM ports, LPT ports, FDD port according to setup value
33-3B	Reserved
3C	Set flag to allow users to enter CMOS Setup utility
3D	1 Initialize Keyboard 2 Install PS2 mouse
3E	Try to turn on Level 2 cache Note: Some chipset may need to turn on the L2 cache in this stage. But usually the cache is turn on later in POST 61h
3F-40	Reserved
BF	1 Program the rest of the Chipset's value according to Setup (Later Setup Value Program) 2 If auto-configuration is enabled, programmed the chipset with pre-defined values
41	Initialize floppy disk drive controller
42	Initialize Hard drive controller
43	If it is a PnP BIOS, initialize serial & parallel ports
44	Reserved
45	Initialize math coprocessor
46-4D	Reserved
4E	If there is any error detected, such as video, kb, ..., show all the error messages on the screen & wait for user to press <F1> key
4F	1 If password is needed, ask for password 2 Clear the Energy Star Logo (Green BIOS only)
50	Write all CMOS values currently in the BIOS stack area back into the CMOS
51	Reserved

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POST (hex)	DESCRIPTION
52	1. Initialize all ISA ROMs 2. Later PCI initializations (PCI BIOS only) assign IRQ to PCI devices initialize all PCI ROMs 3 PnP initializations (PnP BIOS only) assign I/O, Memory, IRQ & DMA to PnP ISA devices initialize all PnP ISA ROMs 4 Program shadows RAM according to Setup settings 5 Program parity according to Setup setting 6 Power Management Initialization Enable/Disable global PM APM interface initialization
53	1 If it is NOT a PnP BIOS, initialize serial & parallel ports 2 Initialize time value in BIOS data area by translate the RTC time value into a timer tick value
60	Setup Virus Protection, Boot Sector Protection, functionality according to Setup setting
61	1 Try to turn on Level 2 cache Note: if L2 cache is already turned on in POST 3D, this part will be skipped 2 Set the boot up speed according to Setup setting. 3 Last chance for Chipset initialization 4 Last chance for Power Management initialization (Green BIOS only) 5 Show the system configuration table
62	1 Setup daylight saving according to Setup value 2 Program the NUM Lock, typematic rate & typematic speed according to Setup setting.
63	1 If there is any changes in the hardware configuration, update the ESCD information. (PnP BIOS only) 2. Clear memory that have been used 3. Boot system via INT 19H
FF	System Booting. This means that the BIOS already pass the control right to the operating system.

Unexpected Errors

POST (hex)	DESCRIPTION
B0	Interrupt occurs in protected mode
B1	Unclaimed NMI occurs

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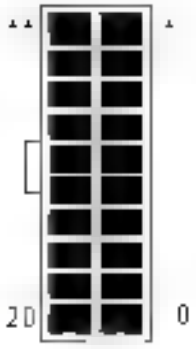
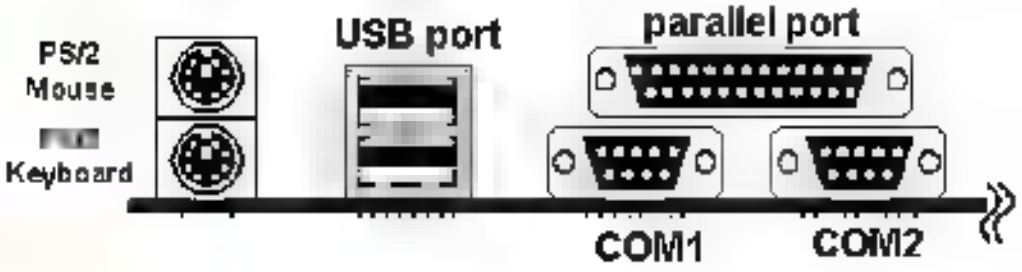
APPENDIX B: CONNECTORS

ATX Power Supply Connector:



Signal Name	Pin	Pin	Signal Name
3.3V	11	1	3.3V
12.0V	12	2	3.3V
GND	13	3	GND
PS-ON	14	4	5.0V
GND	15	5	GND
GND	16	6	5.0V
GND	17	7	GND
5.0V	18	8	PW-OK
5.0V	19	9	5VSB
5.0V	20	10	12.0V

I/O back pannel connector:



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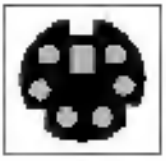
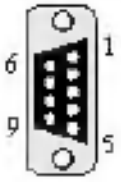
PS/2 KEYBOARD & MOUSE CONNECTOR:



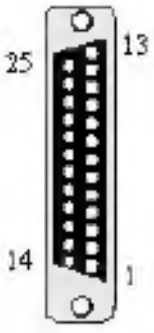
Pin	Signal Name
1	Data
2	Clock
3	GND
4	NC
5	VCC

COM1,COM2 : Serial Ports Connector



Signal Name	Pin	Pin	Signal Name
DCD	1	6	DSR
SIN	2	7	RTS
SOUT	3	8	CTS
DTR	4	9	RI
GND	5		

LPT1 : Parallel Port Connector



Signal Name	Pin	Pin	Signal Name
STROBE-	1	14	AUTO FEED-
Data Bit 0	2	15	ERROR-
Data Bit 1	3	16	INIT-
Data Bit 2	4	17	SLCT IN-
Data Bit 3	5	18	Ground
Data Bit 4	6	19	Ground
Data Bit 5	7	20	Ground
Data Bit 6	8	21	Ground
Data Bit 7	9	22	Ground
ACJ-	10	23	Ground
BUSY	11	24	Ground
PE	12	25	Ground
SLCT	13		

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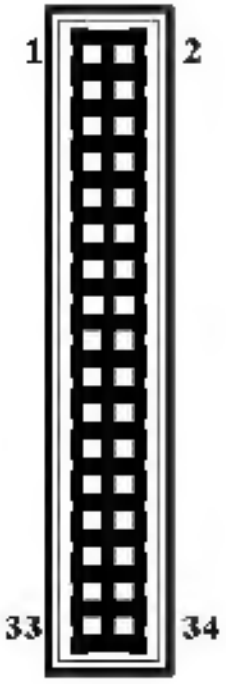
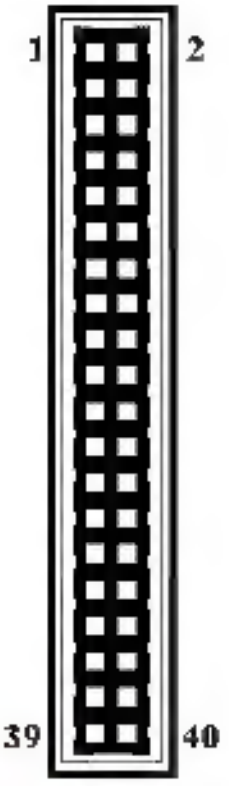
FDD1 : Floppy Disk Connector



Signal Name	Pin	Pin	Signal Name
Ground	1	2	FDHDIN
Ground	3	4	Reserved
Ground	5	6	FDEDIN
Ground	7	8	Index-
Ground	9	10	Motor Enable
Ground	11	12	Drive Select B-
Ground	13	14	Drive Select A-
Ground	15	16	Motor Enable
Ground	17	18	DIR-
Ground	19	20	STEP-
Ground	21	22	Write Data
Ground	23	24	Write Gate
Ground	25	26	Track 00-
Ground	27	28	Write Protect-
Ground	29	30	Read Data-
Ground	31	32	SIDE 1 SELECT-
Ground	33	34	Diskette

IDE1,IDE2 : Primary, Secondray IDE Connector



Signal Name	Pin	Pin	Signal Name
Reset IDE	1	2	Ground
Host Data 7	3	4	Host Data 8
Host Data 6	5	6	Host Data 9
Host Data 5	7	8	Host Data 10
Host Data 4	9	10	Host Data 11
Host Data 3	11	12	Host Data 12
Host Data 2	13	14	Host Data 13
Host Data 1	15	16	Host Data 14
Host Data 0	17	18	Host Data 15
Ground	19	20	Key
DRQ3	21	22	Ground
I/O Write-	23	24	Ground
I/O Read-	25	26	Ground
IOCHRDY	27	28	BALE
DACK3-	29	30	Ground
IRQ14	31	32	IOCS16-
Addr 1	33	34	Ground
Addr 0	35	32	Addr 2
Chip Select 0-	37	38	Chip Select 1-
Activity	39	40	Ground

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Appendix C : AGP Driver for Windows 95 Installation Guide

This section provides the information for installation of Apollo VP3 VxD Driver which supports Accelerated Graphics Port (AGP) functionalities.

SYSTEM REQUIREMENTS

1 Microsoft Windows 95 OSR2.1 (OSR2.0 with USB upgrade)
2 VIA Apollo VP3 AGP Driver (Vgart.VXD)
3 AGP VGA Card with Driver
4 DirectX5 DDk or SDK

INSTALLATION PROCEDURE

Step 1 Install Windows 95 4.00.950 B or later version
Step 2 Install USBSUPP (USB upgrade)
Step 3 Install Apollo VP3 AGP Driver
-run the program "SETUP.EXE" which can be found in the VIA VxD driver disk and this process will then automatically install the VIA VxD driver onto your windows 95 system
Step 4. Install VGA driver for Windows 95
Step 5 Install Microsoft Direct X5 DDK or SDK

NOTES

1. This driver should be installed on a system with the VIA Apollo VP3 AGP chipset while other chipsets is not be supported. The VIA VxD Driver is only supported by Windows 95 OSR 2.0 (4.00.950 B) ro later versions.
2 For Win95 users, you will need to
a. Get "USBSUPP.EXE" from Microsoft (www.microsoft.com), which includes the USB supplement and a new memory manager (VMM32.VxD) needed for the AGP DIME (Direct Memory Execute) feature.
b. Get DirectX 5.0 from Microsoft (www.microsoft.com). DirectX 5.0 is the first DirectX version that supports AGP's DIME
c. Get "VIAGART.VXD", a virtual device manager which is usually installed during the installation procedure of the Windows 95 card driver
3. To make sure if the Apollo VP3 AGP driver is properly installed, one must boot the Windows 95 system up and run "Regedit" and check whether the file VIAGART exists in the following path
"HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VxD
4 To check whether the AGP driver is able to activate, one must do the following:
a. Activate the "Control Panel"

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b. Click on "Direct X" then
c. Click on "Direct Draw" and
d. Check if there are some values existing in the "Bit" and "overlays " if there is, that means the AGP can be activated properly

REPLACING AN EXISTING VGA CARD WITH THE AGP VGA CARD

1. Shut down the computer and then turn off the power
2. Replace the VGA card boot up the system once again
3. Now, Update Device Driver Wizard Window will appear This wizard will complete the installation of the Standard PCI Graphics Adapter (VGA).
   Click Next > to let Windows search for an updated driver

   WARING ! Only click Next >. The system will hang if you click Cancel!

4. Click Finish to install the VGA driver You will then be asked for your Windows 95 CD in order to complete the VGA driver installation. If you do not have your CD handy, direct the installation path to your \windows\system directory. Windows will prompt you to restart your windows Chose "NO" and install the appropriate AGP VGA Driver

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